

The child grew and became strong in body, mind, and spirit. *Luke 2:40*

St Peter's C.E. Primary School

Science



Curriculum Intent

CORE VALUES: LOVE

FAITH

TRUST

HOPE

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Curriculum

Learning expectations by key concept

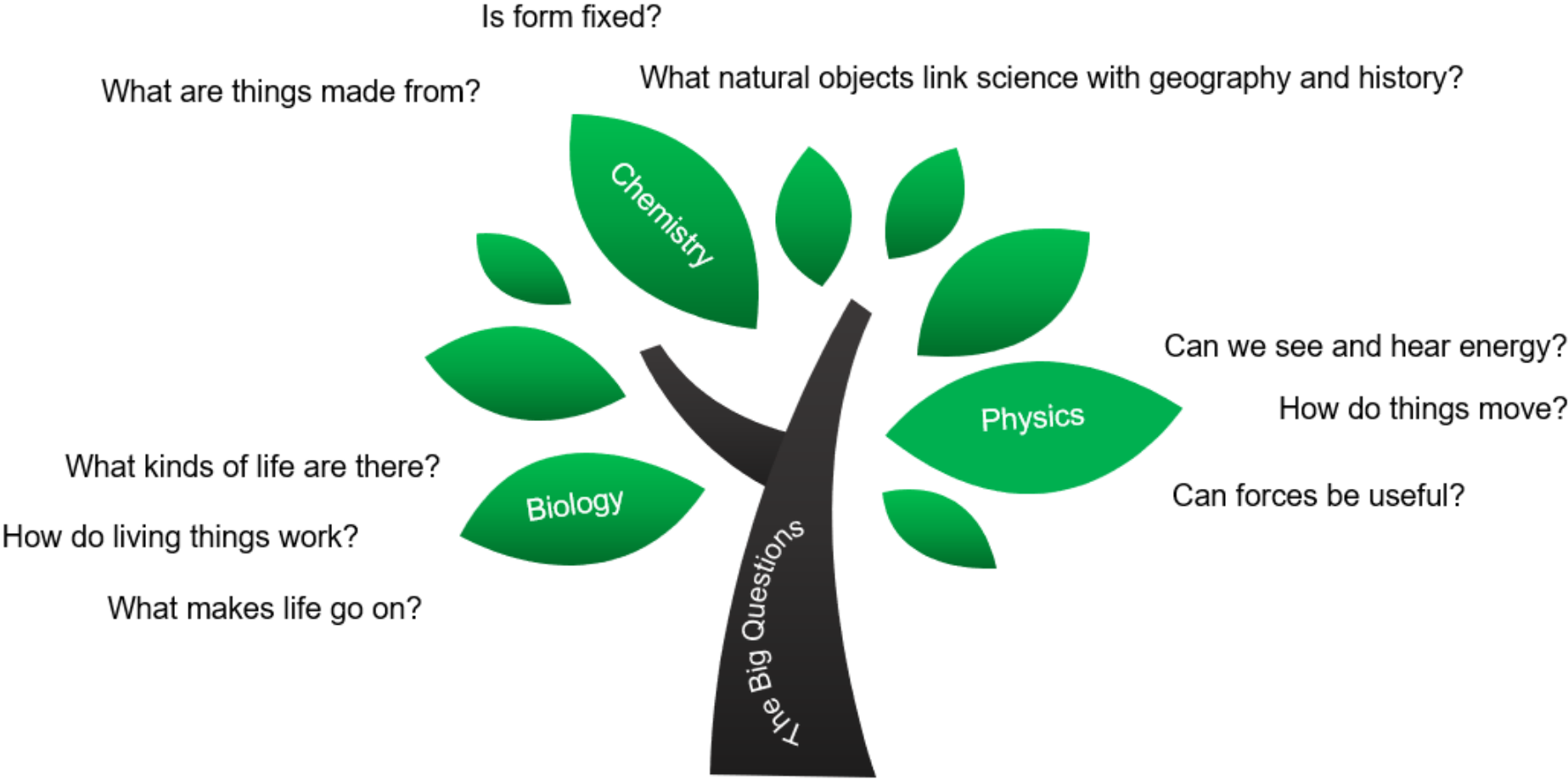
CORE VALUES: LOVE

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Biology- The big questions

What kinds of life are there?

1. What is alive? (Year 1)
2. Living things: what's the same and what's different? (Year 4)
3. Living things: what's the same and what's different? (Year 6)

How do living things work?

1. What are bodies and what can they do? (Year 1)
2. How can living things stay healthy? (Year 2)
3. How do living things work? (Year 3)
4. What do our bodies do with the food we eat? (Year 4)
5. How do our choices affect how our bodies work? (Year 6)

What makes life go on?

1. Does our world change or stay the same? (Year 1)
2. What is alive, dead or was never alive? (Year 2)
3. Do living things need different things to survive? (Year 3)
4. Do all life cycles look the same? (Year 5)
5. How do our bodies change as we get older? (Year 5)
6. How do living things change over time? (Year 6)

Chemistry- The big questions

What are things made from?

1. What are things made from? (Year 1)
2. How do we choose materials? (Year 2)
3. What are things made from and why? (Year 5)

Is form fixed?

1. Can we change materials? Part 1 (Year 2)
2. Is water always wet? (Year 4)
3. Can we change materials? Part 2 (Year 5)

What natural objects link science with history and geography?

1. Are all rocks the same? (Year 3)

Physics- The big questions

Can we see and hear energy?

1. What is the dark? (Year 3)
2. How do we hear different sounds? (Year 4)
3. How do we see? (Year 6)

How do things move?

1. Sun, Earth and Moon: what's moving? (Year 5)
2. How do things move? (Year 5)

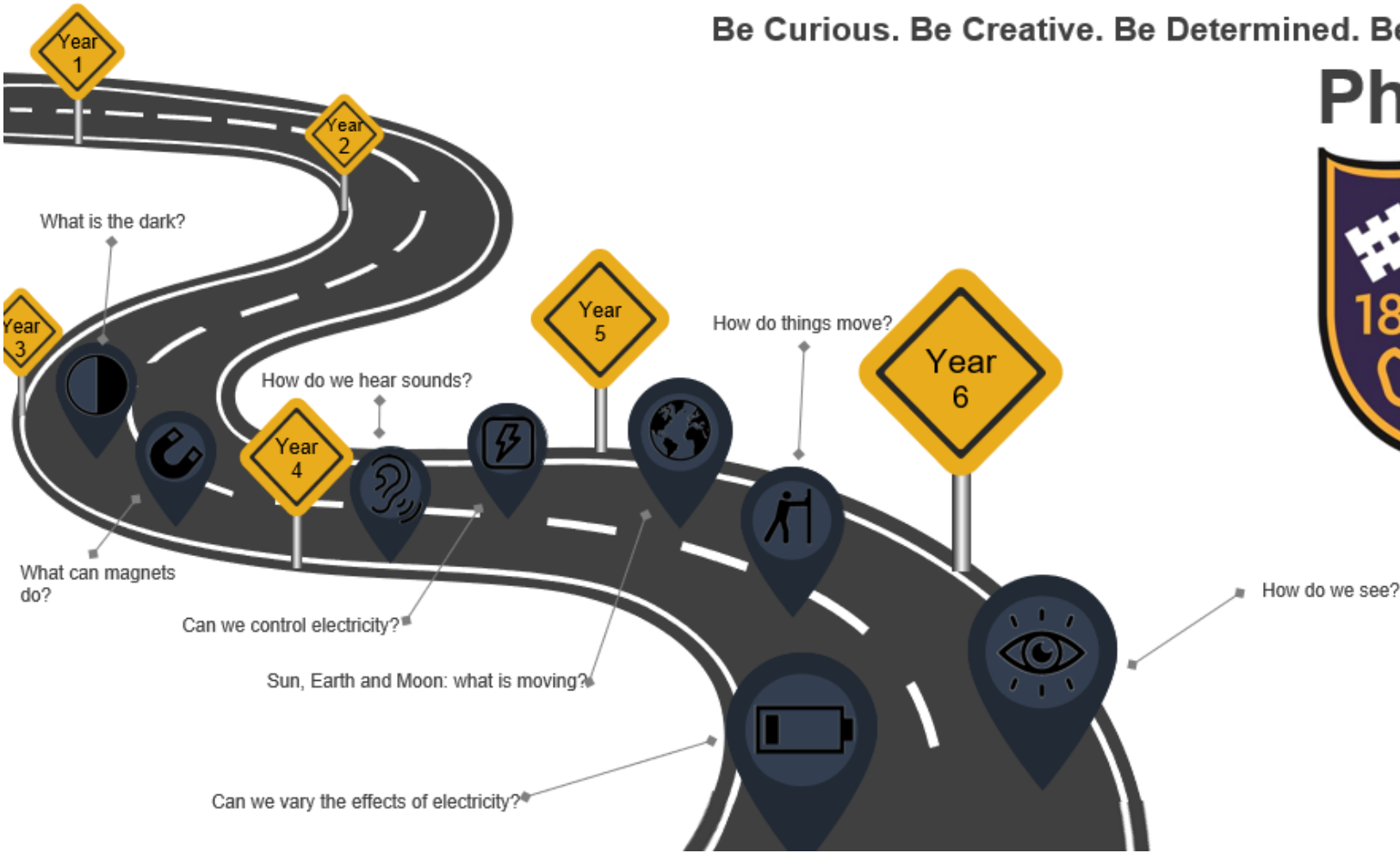
Can forces be useful?

1. What can magnets do? (Year 3)
2. Can we control electricity? (Year 4)
3. Can we vary the effects of electricity? (Year 6)

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Be Curious. Be Creative. Be Determined. Be St. Peter's.

Physics



CORE VALUES: LOVE

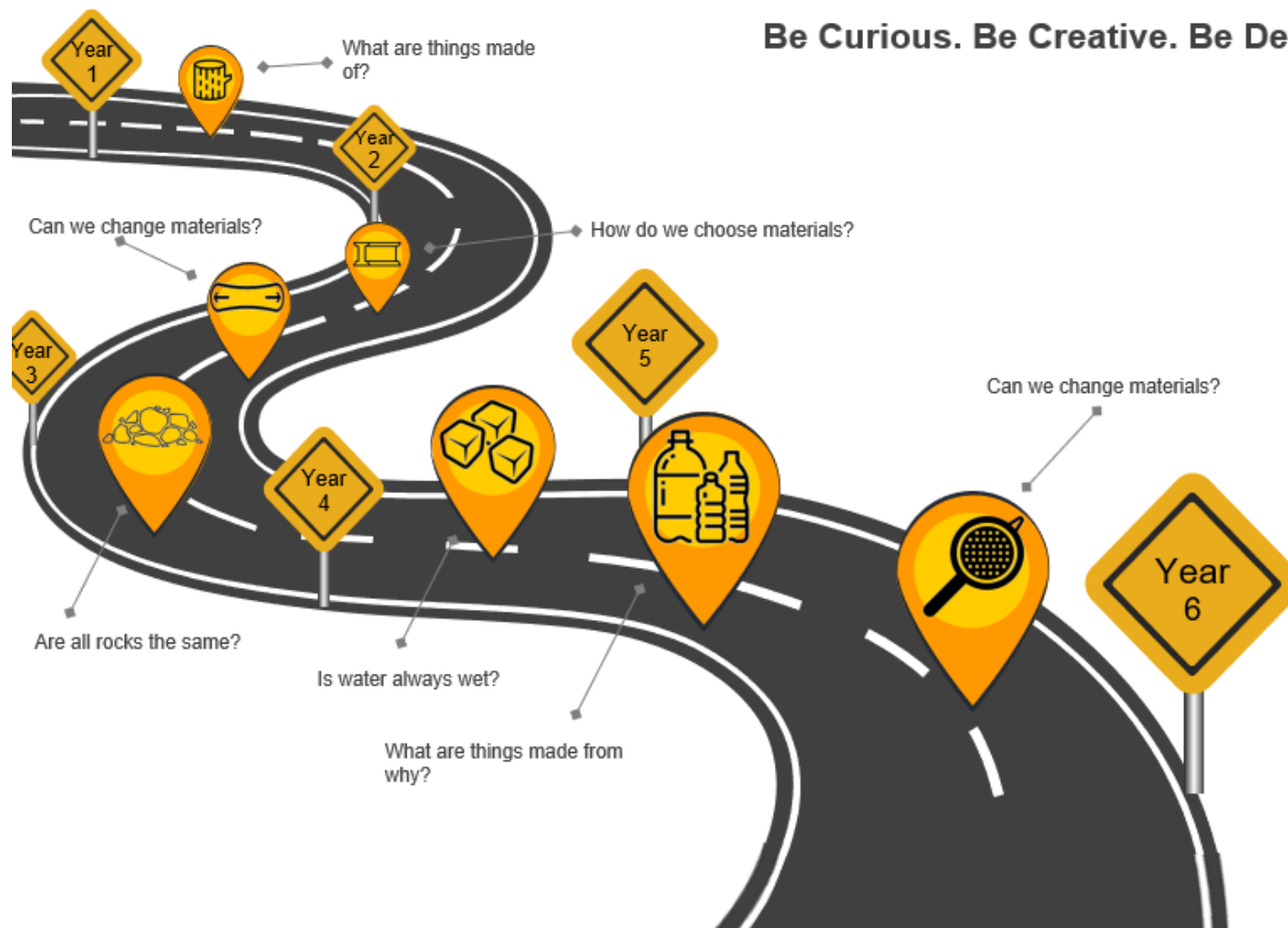
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Chemistry



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Curriculum

Science capital, school intent and vocabulary
acquisition

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EYFS	Science Capital	School intent	Vocabulary
Biology: What kinds of life are there?		What animals/mini-beasts can we find around Newton? What local birds can we see around Newton? Local Park Rangers lead workshops on local flora and fauna https://www.lancswt.org.uk/wildlife - for local wildlife studies Biodiversity in St Helens https://www.sthelens.gov.uk/media/3177/biodiversity.pdf	animal, human, hibernate, carnivore, omnivore, herbivore, local, rock pool, nocturnal, dinosaurs, reptile
Biology: How do living things work?		What is the most common tree found in Newton? Are there any rare and interesting trees in Newton? Jack and the Beanstalk Local Park Rangers lead workshops on local flora and fauna https://www.lancswt.org.uk/wildlife - for local wildlife studies Biodiversity in St Helens https://www.sthelens.gov.uk/media/3177/biodiversity.pdf	seed, root, stem, leaf, grow, life cycle, amphibian, egg
Chemistry: What are materials?		http://www.heartofglass.org.uk/ https://www.pilkington.com/en-gb/uk/about https://www.suttonbeauty.org.uk/suttonhistory/mineworking/	hard, soft, bendy, rough, smooth, stretch, shiny, shadow, strong, float, sink
Biology: Does our world change or stay the same?		The Rabbit Problem- Emily Gravett What weather is most common in Newton? Has Newton been designed to cope with this weather? Could Newton be improved to cope better with this weather?	Summer, Autumn, Winter, Spring, day time, night time

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Year 1	Science Capital	School intent	Vocabulary
Biology: What is alive?	<p>What happens when we mistreat plants? Why do we need plants? What would a world without plants and animals look like? Why do some people choose to become vegetarian?</p>	<p>What animals/mini-beasts can we find around Newton? What is the most common tree found in Newton? Are there any rare and interesting trees in Newton? What local birds can we see around Newton? Jack and the Beanstalk Local Park Rangers lead workshops on local flora and fauna</p> <p>https://www.lancswt.org.uk/wildlife - for local wildlife studies</p> <p>Biodiversity in St Helens https://www.sthelens.gov.uk/media/3177/biodiversity.pdf</p>	<p>Wild plant, garden plant, roots, leaf, stem, flow, seeds, bulbs</p>
Biology: What are bodies and what can they do?	<p>We need to look after our bodies. What would life be like without an eye/arm/sense of smell?</p>	<p>Would being tall or short be more suited to working in a mine shaft? Are children taller or shorter than they were when the St. Helens mines were in operation? How do the animals in Newton/St. Helens differ to those found in Australia or the Americas? Links to SMSC/Jigsaw (disabilities)</p>	<p>sight, hearing, touch, taste, smell</p>
Chemistry: What are things made of?	<p>How do the materials inside school differ to those outside? Why do we use different materials to those we find in nature?</p>	<p>http://www.heartofglass.org.uk/ https://www.pilkington.com/en-gb/uk/about https://www.suttonbeauty.org.uk/suttonhistory/mineworking/</p>	<p>Hard, soft, bendy, rough, smooth, stretchy, shiny, dull, waterproof, absorbent, transparent, translucent, opaque</p>
Biology: Does our world change or stay the same?	<p>How can we prepare ourselves for different types of weather? What would happen to us if we didn't prepare? What festivals so we celebrate at different points in the year?</p>	<p>The Rabbit Problem- Emily Gravett What weather is most common in Newton? Has Newton been designed to cope with this weather? Could Newton be improved to cope better with this weather?</p>	<p>Summer, Autumn, Winter, Spring, Day time, Night time</p>

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Year 2	Science Capital	School intent	Vocabulary
Biology: What is alive, dead or was never alive?	Do living things deserve to be looked after? Why have some animals become extinct? Are other animals at risk of becoming extinct?	How long has your family been in Newton? How long have families settled and lived in Newton? Who were the first people here? https://www.newton-le-willows.com/ https://www.british-history.ac.uk/vch/lancs/vol4/pp132-137	Nutrition, reproduction, excretion, growth, movement, respiration, sensitivity
Biology: What do living things need to survive and stay healthy?	What would life be like without a home? Are we taking the homes of animals and plants away? Do we need to look after our bodies? How would our lives be affected if we didn't look after our health and hygiene?	How are we affecting the habitats around Newton? What are St Helens council doing to promote biodiversity and protect habitats? https://www.sthelens.gov.uk/media/3177/biodiversity.pdf https://www.lancswt.org.uk/wildlife - for local wildlife studies How does our town promote healthy living and exercise? What shops/parks/walks etc. encourage us to look after ourselves http://www.healthysthelens.co.uk/ https://www.sthelens.gov.uk/environmental-services/parks-and-open-spaces/parks-and-green-spaces-in-st-helens/	Habitat, micro-habitat, predator, prey, hygiene, nutrition
Chemistry: How do we choose materials?	Why is our school made out of the materials it is? What materials would make the best 'woodland den'? Why? What else could our school be made of?	How have materials shaped our town? Heart of Glass- St Helens Ravenhead glass factory St Helens Knauf insulation factory St Helens Pilkingtons St Helens http://www.heartofglass.org.uk/ https://www.pilkington.com/en-gb/uk/about https://www.suttonbeauty.org.uk/suttonhistory/mineworking/	materials, suitability, properties, metal, wooden, plastic, glass, rock, brick, fabric, wool, diamond, ceramic
Chemistry: Can we change materials?	Why do we need new materials? How is our plastic use affecting our world? Are there other materials we can use instead of plastic, for all its varied uses?	Heart of Glass- St Helens Ravenhead glass factory St Helens Knauf insulation factory St Helens Pilkingtons St Helens http://www.heartofglass.org.uk/ https://www.pilkington.com/en-gb/uk/about	John McAdam, John Dunlop, Charles Macintosh, Macadamisation, rigid, flexible, absorbent, elastic

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Year 3	Science Capital	School intent	Vocabulary
Biology: How do living things work?	Why can trees grow so large? Why do flowers smell sweet? What should I plant to attract wildlife to my garden? Do all animals have bones? Do all animals have internal skeletons?	What common flowers, plants and trees are there around Newton? https://www.sthelens.gov.uk/media/3177/biodiversity.pdf What different animals (including insects with exoskeletons) can be found around Newton? Bug house (including skeletons) https://www.visitliverpool.com/things-to-do/bug-house-at-world-museum-liverpool-p199951	Skeleton, skull, rib, muscle, contract, root, stem, leaf, flower,
Biology: Do living things need different things to survive?	Do all living things need the same things to keep them alive and healthy? Do plants have different diets like we do? Do different animals have different diets like we do?	What common pollinators are there around Newton? How can we increase the numbers of these pollinators? How is St Helens council promoting and encouraging healthy eating? http://www.healthysthelens.co.uk/our-services/food-nutrition/	nutrition, protein, carbohydrates, fibre, fats, vitamins and minerals
Physics: What is the dark?	Why does the dark seem scary? Should it be? Why must we never look directly at the Sun? How do sun glasses work? Can shadows be useful? How do we tell the time using shadows? Why do we need street lights? What might happen if they don't work?	Glass production in St Helens (Ravenhead, Pilkingtons etc.) How did ancient cultures in Merseyside create and use mirrors? Are there any sun dials around St Helens?	light, light source, dark, reflect, reflection, ray, shadow
Physics: What can magnets do?	Can we make our own compass? How do trains use magnets? (Maglev trains) How do electric motors use magnets? What is the world's strongest/biggest magnet? Who was William Gilbert and why was he important? How important to our daily lives is iron?	How did magnets and navigation shape Merseyside? https://www.liverpoolmuseums.org.uk/merseyside-maritime-museum	forces, friction, surface, magnet, magnetic, magnetic field, poles, repel, attract
Chemistry: Are all rocks the same?	Did our local area always look like it does? Are there clues within our ground that tell us what life was like many years ago? How are caves formed?	What is the soil around Newton made of? Are there any stone buildings? What stone is used in and around our church? https://www.bgs.ac.uk/bgsrscs/ https://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html https://www.tripadvisor.co.uk/Attraction_Review-g635920-d592168-Reviews-White_Scar_Cave-Ingleton_Yorkshire_Dales_National_Park_North_Yorkshire_England.html	magma, lava, sediment, permeable, impermeable, fossilisation, palaeontology, erosion

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Year 4	Science Capital	School intent	Vocabulary
Biology: Living things: what's the same and what's different?	How do we cope with our environment? What other living things share our environment? What would happen to us (and our other living things in our environment) if our environment changed?	Why are great crested newts and water voles protected in St Helens? How is St Helens council protecting our environment and biodiversity? Biodiversity in St Helens https://www.sthelens.gov.uk/media/3177/biodiversity.pdf	classification, characteristics, vertebrates, invertebrates
Biology: What do our bodies do with the food we eat?	Where does our food go? How can we use poo to decide how healthy we are? Can we tell what diet/food an animal has by looking at its skull? Why, and how, must we keep our teeth clean and healthy?	How does St Helens promote and encourage healthy eating? http://www.healthysthelens.co.uk/our-services/food-nutrition/ http://bridgewater.nhs.uk/communitydentalnetwork/oral-health-improvement/	incisor tooth, molar tooth, canine tooth, producer, consumer, digestive system
Physics: How do we hear sounds?	How and why do loud sounds damage our ears? How can we keep our sense of hearing safe? What is life like for those that are deaf or partially deaf? Can sound cause damage to inanimate objects? Can you break a glass by singing loudly or highly enough?	What are the noise levels around Newton? Does it fall within the recommended safety levels? How does St Helens and Newton-le-Willows cater for the deaf in society? https://www.deafnessresourcecentre.org/	vibration, sound wave, volume, amplitude, pitch, particles
Physics: Can we control electricity?	Why must we never touch mains electricity plugs and plug sockets? How and why do our lights work? Why do our Christmas lights sometimes not work? What happens when I push a light switch? What must I do if I spot a plug or electrical appliance on fire? Can I pour water on it? Should I use a hair dryer in the bath? Why?	How do we keep ourselves safe against accidents involving electricity? What safety features can we find around Newton that keep us safe from electricity? How does the power grid ensure all households get enough electricity? Where does our electricity come from? Fiddler's Ferry Power Station (now closed) Rocksavage Power Station (Runcorn)	electricity, generate, appliances, circuit, renewable, non-renewable

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Chemistry: Is water always wet?	Why does it rain? Where does the water come from? Why don't lakes and ponds evaporate away? Can I drink rain water? Where does steam go after it leaves a kettle? What human factors affect the water cycle? (Climate change, increased temperature, increased building causing flooding at Alder Root etc.)	How is glass formed? (Melting sand etc.) Ravenhead and Pilkington's glass How do local rivers/ponds/lakes (Sankey Brook, Newton Lake etc.) feature in the water cycle? https://www.southportecocentre.com/ → River Alt field trip	liquid, solid, gas, freeze, melt, evaporating, condensing
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Year 5	Science Capital	School intent	Vocabulary
Biology: Do all life cycles look the same?	Do all things grow old like we do? How do farmers ensure they always grow enough food? How can we protect the life cycles of local endangered species? Jane Goodhall David Attenborough	https://www.lancswt.org.uk/wildlife for local wildlife study Mesnes park and Willow park	reproduction, sperm, egg, pollen, germination, metamorphosis, fertilisation, gestation
Biology: How do our bodies change as we get older?	Why do babies look different to children, and to adults? What will happen to my body over the next few years?	School nurses What facilities do we have in Newton for people of different ages? RSE and Jigsaw link- how might growing older affect our emotions and relationships?	offspring, puberty, testosterone, oestrogen, acne, hygiene, life expectancy
Physics: Earth, Sun and Moon- what is moving?	Will we ever need to leave Earth? Should we put people in danger to further the science (Mars One mission)? Tim Peake/Neil Armstrong Mars Rover Lunar Orbiter	Jodrell Bank Discovery Centre- https://www.jodrellbank.net/ Does the night sky in Newton look the same as the night sky in Australia?	star, moon, planet, sphere, orbit, rotate, geocentric model, heliocentric model
Physics: How do things move?	How does my bike stop when I press the brake? How do parachutes work? Can I lift a tonne on my own? How do Formula 1 designers use their knowledge of forces when designing their cars? Isaac Newton- Gravity Galileo Galilei Archimedes (If you give me a long enough lever...)	History link- parachute training WWII at Tatton Hall https://www.tracesofwar.com/sights/21639/Memorial-Parachute-Training-School-Ringway.htm Oulton Park racetrack https://www.oultontpark.co.uk/ Link to previous History (Year 3 Romans)- trebuchets and catapults	forces, gravity, weight, mass, mechanism
Chemistry: What are things made of?	Why and how do we clean water? How do we ensure that the materials we use are safe? How do use materials to keep ourselves safe in school and at home?	Catalyst Museum	conductor, insulator, thermal, mixture, solution, dissolve

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<p>Chemistry: Can we change materials?</p>	<p>How are affecting our environment by burning fossil fuels? How does plastic affect our lives? Alfred Nobel- dynamite and Nobel Peace Prize Why do we need new materials?</p>	<p>Catalyst Museum</p>	<p>chemical change, substance, reaction, rust, corrode, compound</p>
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Year 6	Science Capital	School intent	Vocabulary
<p>Biology: How do our choices affect how our bodies work?</p>	<p>How can we keep ourselves healthy? What might happen to our bodies if we make the wrong choices? What is life like for someone with sickle cell disease?</p>	<p>British Heart Foundation fundraising- https://www.bhf.org.uk/how-you-can-help/fundraise/schools-and-young-people-fundraising St Helens healthy living team- http://www.healthysthelens.co.uk/our-services/exercise/meet-the-team/ SEQIRUS vaccines (production)- parent contact https://www.seqirus.com/</p>	<p>circulatory system, heart, lungs, absorb, drugs, exercise, right atrium, left atrium, right ventricle, left ventricle, artery, vein</p>
<p>Biology: Living things- what's the same and what's different?</p>	<p>How are living things related to each other? How can we better understand living things, and therefore look after them? How did an accident in a lab save millions of lives? Alexander Fleming Carl Linnaeus</p>	<p>Bioblitz- https://www.nhm.ac.uk/content/dam/nhmwww/take-part/Citizenscience/bioblitz-guide.pdf OPAL surveys- https://www.opalexplornature.org/surveys PowerPoint classification and table making tools Plant and animal identification apps</p>	<p>organism, species, binominal name, taxonomist, insect, arachnid, crustacean, myriapod</p>
<p>Biology: How do living things change over time?</p>	<p>Why should we be encouraging conservation work? Why do we look similar, but different to our siblings and parents? Can we use the process of evolution to better people's lives? (better crop yields, understanding diseases like cystic fibrosis) Charles Darwin</p>	<p>How did changing Britain (including St Helens) affect the peppered moth?</p>	<p>characteristic, inherited, acquired, adapt, evolution, natural selection, variation</p>

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<p>Physics: How do we see?</p>	<p>Why and how should we look after our eyes? What is life like for a blind person? Are shadows useful to us?</p>	<p>Light houses of the North West https://lighthouseaccommodation.co.uk/lighthouse-directory/north-west-england/ Sight Loss council Greater Manchester https://www.sightlosscouncils.org.uk/meet-the-councils/greater-manchester/ Sight Loss Charity https://www.galloways.org.uk/</p>	<p>light, light source, ray, incident ray, reflected ray, absorb, visible spectrum, shadow</p>
<p>Physics: Can we vary the effects of electricity?</p>	<p>Why are plug sockets dangerous? What are the dangers of high voltage?</p>	<p>KS2 electricity workshops http://www.ks2electricityscience.co.uk/ How do we use electricity around school?</p>	<p>electrical symbol, current, amp, voltage, resistance, electrons</p>

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Curriculum

Mapping and organisation

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	Autumn 1		Autumn 2	Spring 1		Spring 2	Summer 1	Summer 2	
EYFS	<p>Seasons- What happens in Autumn? Animals- What animals are nocturnal? Night and Day. Investigate my natural surroundings- Field wok.</p>		<p>Seasons-How does Autumn turn to Winter?_Collect leaves-tree species. Evergreen/deciduous. Animals and their young. Materials- what material will save the 3 little pigs?</p>	<p>Seasons-What are the signs of Winter? Hibernation- which animals hibernate and why? African animals. Creek- What would you find in a creek? Camouflage- Why do some animals camouflage?</p>		<p>Seasons- How does Winter turn to Spring? Sea life and land creatures-how are they different? Which animals can live in the water? What can you find in a Rock pool in the UK?</p>	<p>Seasons- What is happening to the plants and trees? What comes from an egg? Amphibians- what is an amphibian? What did dinosaurs eat? (Food groups) Life cycles- observe changes over time. Plant seeds- growth.</p>	<p>Seasons- What happens in summer? Tree changes. Plants- What do they need to survive? Life cycle. Observe changes. Floating and Sinking experiments- what would float at sea?</p>	
Year 1	<p>Biology- Does our world change or stay the same?</p>	<p>Chemistry- What are things made of?</p>	<p>Chemistry- What are things made of?</p>	<p>Biology- Does our world change or stay the same?</p>	<p>Biology- What is alive?</p>	<p>Biology- What is alive?</p>	<p>Biology- What are bodies and what can they do?</p>	<p>Biology- What are bodies and what can they do?</p>	<p>Biology- Does our world change or stay the same?</p>
Year 2	<p>Chemistry- How do we choose materials?</p>		<p>Chemistry- Can we change materials?</p>	<p>Biology- What is alive, dead or never alive?</p>		<p>Biology- What do living things need to survive and stay healthy?</p>	<p>Biology- What do living things need to survive and stay healthy?</p>	<p>Consolidation and famous scientists study McIntosh Dunlop Steve Irwin</p>	
Year 3	<p>Chemistry- Are all rocks the same?</p>		<p>Physics- What can magnets do?</p>	<p>Biology- How do living things work?</p>		<p>Biology- Do living things need different things to survive</p>	<p>Physics- What is the dark?</p>	<p>Consolidation and famous scientist study</p>	
Year 4	<p>Chemistry- Is water always wet?</p>		<p>Physics- How do we hear sounds?</p>	<p>Physics- Can we control electricity?</p>		<p>Biology- Living things: What's the same and what's different?</p>	<p>Biology- What do our bodies do with the food we eat?</p>	<p>Consolidation and famous scientist study</p>	

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Year 5	Physics- How do things move?	Physics- Earth, Sun and Moon- what is moving?	Chemistry- What are things made of?	Biology- Do all life cycles look the same?	Biology- How do our bodies change as we get older?	Consolidation and Famous scientist study
Year 6	Biology- Living things: what's the same and what's different?	Biology- How do our choices affect how our bodies work?	Biology- How do living things change over time?	Physics- How do we see?	Physics- Can we vary the effects of electricity?	Consolidation and Famous scientist study

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